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ABSTRACT

This booklet provides an introduction to evaluating a work force training program, both to assess its impact and to improve its effectiveness. The guide provides instructions for assessing a single training program, rather than a training department in a company or a training provider. It is targeted at small and mid-sized companies and the providers that serve them (such as community colleges). The guide is organized in four sections. The first section lays out the entire training process and identifies how and where this guide can help in that process. The second section provides an introduction that defines evaluation and explains its value. The third section presents 10 steps for designing and implementing a training evaluation: establish provider-customer relationship, gain key stakeholder involvement, identify training goals and objectives, specify outcomes, examine inputs and processes, identify data required, collect data, analyze data, interpret data, and use and report data. The fourth section of three appendixes contains the following: (1) an annotated list of 14 training evaluation resources; (2) lists of the National Workforce Assistance Collaborative's board and councils; and (3) lists of the collaborative's products and services. (KC)

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Assessing the Value of Workforce Training

**A GUIDE FOR
SMALL AND
MID-SIZED
COMPANIES
AND THE
PROVIDERS
THAT SERVE
THEM**



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CE 075-035

The National Workforce Assistance Collaborative builds the capacity of the service providers working with small and mid-sized companies in order to help businesses adopt high-performance work practices, become more competitive, and ultimately advance the well-being of their employees. The Collaborative was created through a cooperative agreement grant from the Department of Labor to the National Alliance of Business. Current partners on the project include the Council for Adult and Experiential Learning, the Institute for the Study of Adult Literacy at The Pennsylvania State University, the Maryland Center for Quality and Productivity, and the National Labor-Management Association. The Collaborative provides assistance in four areas: employee training, labor-management relations, work restructuring, and workplace literacy. For more information, contact the National Alliance of Business, phone: 800/787-2848, fax: 202/289-2875, e-mail: INFO@NAB.COM.

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Assessing the Value of Workforce Training

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February 1997



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Preface

Many companies trying to improve their productivity and competitiveness are turning to training as a means of achieving this end. Some of these companies, though, are not willing to accept training's value on faith, and are looking for proof of training's worth. *Assessing the Value of Workforce Training* is designed to meet this need. It provides an introduction to evaluating a workforce training program, both to assess its impact and improve its effectiveness.

This guide provides instructions for assessing a single training program, rather than a training department in a company, or a training provider. It can be used to determine whether training results match training goals, whether training dollars are being well spent, and how training programs might be improved.

Assessing the Value of Workforce Training can help both those from small and mid-sized businesses responsible for training, and those from service provider organizations that provide training (such as community colleges). It can be used for training evaluations conducted internally by a training department, or externally by a third-party evaluator.

Assessing the Value of Workforce Training is specifically targeted at small and mid-sized companies and the providers that serve them. While the material presented here is equally relevant for larger companies, most of these companies have the resources to engage in more extensive, rigorous, and costly evaluations. This guide presents a simplified assessment, more useable than a full-scale, scientific "evaluation" would be. However, to be consistent with commonly-used terminology, the guide will usually use the term "evaluation," instead of "assessing the value," from here on out.

The literature is replete with textbooks, manuals, handbooks, and guides to evaluation

This Publication Is for...

Small and Mid-Sized Companies

- Individual (or department) responsible for providing training

And the Training Providers that Serve Them

- Community colleges
- Universities
- State literacy and training programs
- Labor-management associations
- Business organizations
- Trade and professional associations
- Business development centers
- Private industry councils
- Non-profit organizations
- Private consulting firms

of all types. Rather than duplicating the many excellent resources that presently exist, this guide distills the essence of good evaluation practices and provides guidance for applying these practices to workplace training. It enables you to "stick your toe in the water" of program evaluation. Readers who want to gain greater depth and precision in evaluation, and acquire some useful tools, can refer to the annotated resources list in the appendix.

Assessing the Value of Workforce Training is divided into four sections:

1. *This Guide in Context* – Lays out the entire training process and identifies how and where this guide can help you in that process.
2. *Introduction* – Defines evaluation and explains its value. To make this guide readable and easy to follow, the introduction has been structured around a series of questions.
3. *Designing and Implementing a Training Evaluation* – Describes how to design a

training evaluation and how data may be collected and analyzed. This section has been structured around a series of ten steps.

4. *Appendices* – Contains lists of training evaluation resources, the Collaborative's Board and Councils, and the Collaborative's products and services.

This Guide in Context

Assessing training's value is just a part of the process of developing and operating a training program. To ensure that a training program will meet a company's needs, the company, or a provider in concert with the company must:

1. Identify the problem facing the company,
2. Determine whether training will solve that problem, and,

If training is called for,

3. Determine the most appropriate methodology for delivering training,
4. Select the most appropriate training provider or product, or develop appropriate training,
5. Set up the training program,
6. Deliver the training program,
7. Evaluate the training results, and
8. Use the evaluation results to improve future training delivery.

This guide only addresses steps 7 and 8:

- Evaluating training results, and
- Using evaluation results to improve future training delivery.

It assumes that:

- A business problem or objective was identified,
- It was determined that training would address this problem or meet this objective, and
- A training program was selected (or developed) for delivery.

The National Workforce Assistance Collaborative has developed a number of other tools to help companies and service

providers carry out the steps involved in developing and operating a training program, including:

- *Assessing an Organization's Training Needs*, to identify performance assessment issues and help identify assessment tools,
- *Employee Training Product Checklist* and *Workplace Literacy Product Checklist*, to select the most appropriate employee training or workplace literacy product,
- *Employee Training Interview Guide* and *Workplace Literacy Interview Guide*, to select the most appropriate employee training or workplace literacy provider,
- *Selecting and Implementing Computer-Based Training*, checklists and text that will enable individuals to determine the most appropriate 1) training media, 2) type of computer-based training, and 3) computer-based training product or provider,
- *Resource Guide*, for locating training resources and providers, and
- *Workplace Literacy Publications*, for locating workplace literacy tools and information.

All Collaborative publications can be ordered through the National Alliance of Business Distribution Center, listed on the inside front cover. Collaborative products can also be downloaded from our Internet gopher server or world wide web home page.

Instructions for accessing these are contained in the appendix listing Collaborative products and services.

Introduction

The evaluation of training raises a number of questions. As you read these questions and their answers, try to apply the information to your own training situation.

What is evaluation of training? Evaluation is the process of identifying and measuring the outcomes of a training program and comparing them to the program's objectives. Evaluation can also involve identifying the training program's inputs and processes and linking them to the outcomes, in order to improve the impact of the training program. In other words, did we get what we wanted from the training program? How can we improve it for the next time?¹

Evaluating a training program is somewhat similar to evaluating a restaurant. If a friend asks you how you like the new restaurant on the corner, your response would probably be based on the factors you care about, such as the taste, appearance, and price of the food, the general ambiance of the restaurant, and the efficiency and courtesy of the wait staff. These factors are called "outputs," or "outcomes."

If the restaurant owner is a friend of yours, and asks you for suggestions on how to improve her new restaurant, you would want to look at "inputs," or the factors that go into making a good restaurant, and see how these are linked to the outcomes. You might, for example, study the freshness and quality of the food ingredients, the skills of the employees, and the sanitation of the food preparation, and determine which of these are the likely causes of any good or bad results. With this knowledge, you would be prepared to offer your friend valuable advice.

In evaluating a training program, a similar process is followed. You would first identify the

company's goals for the training program, and then assess the outcomes of the training program in relation to these goals. For example, if a company offers a training program to prepare workers to create more widgets in a given amount of time, then the training program should be assessed for its impact on the productivity of the workers, not on other criteria, such as safety (as important as this is).

The evaluation should determine the extent to which the training program met the needs identified by a company needs assessment. The evaluation should also determine the extent to which the training was aligned with (or grew out of) the business or strategic plan. In other words, the training should address identified needs and goals of the company, and the evaluation should assess whether the training succeeded.

Most evaluations also have the goal of improving the training program. To do this, evaluations need to identify the training inputs (and processes), and link these inputs to the outcomes (or outputs). Training inputs could include such things as the background characteristics of the workers being trained and the skill of the training personnel, as well as aspects of the training program, such as the training curriculum and the program delivery systems. Once you have linked these inputs to the outcomes, you would have a basis for making improvements to the training program.

Why should small and mid-sized businesses evaluate training? What can an evaluation tell you? It makes sense to evaluate any business effort, including training, that costs a company time and money. You need to know the impact of the training program not only on the "bottom line," but also on all stakeholders

¹ Evaluation of the outputs of a training program is called *summative evaluation*. Evaluation of the training inputs and processes, with the goal of improving the program, is called *formative evaluation*.

in the company, including workers, unions, supervisors, managers, owners, trainers, and customers. You also need to know how training might be improved to be more effective and efficient – to produce better outcomes.

Training can be one of a company's most important and valuable assets: the capacity to enhance workers' skills and achieve company goals. Training can also benefit employees, increasing their labor market value, improving their incomes, advancing their careers, and enabling them to grow as people. All of these may be implicit in a company's decision to seek training for its employees, and are often explicit in a provider's efforts at marketing training services.

How do we know that any of these outcomes actually takes place as the result of training? A good, simple evaluation will help validate training services and will benefit the company, the provider, and the workers receiving training. An effective evaluation will indicate whether or not immediate goals and objectives were met. It can also pinpoint the impact of training on the workforce and the company. More broadly, an evaluation will help suggest ways to improve future training and indicate ways that the provider and company can develop a more productive training and skill development relationship.

What factors influence the evaluation of training? The evaluation process will vary depending on a number of factors, some of which are:

- Specificity of the training program objectives,
- Number and background characteristics of the workers involved in the training program,
- Use of existing measuring devices that assess the impact of the training,
- Amount of data related to the training program that the company already collects, and
- Willingness of the top management to send the message that the training evaluation is important and necessary.

A highly specific training program, such as one designed to teach the use of a particular piece of equipment, may be shorter in duration than, say, a workplace literacy program. The results of a highly specific training program will also be more easily measured than those from a program with the objective of raising workers' general functioning level. The impact of a specific training program can be assessed almost immediately, and outcomes can be directly attributed to the program.

With a more general training program, such as workplace literacy, the immediate impact may be hard to determine because the outcomes may be indirect and only evident over a longer period of time. The impact of general training programs can be calculated, though, just not easily. An outcome such as making workers more trainable through increased knowledge and skills – and therefore more able to participate in later technical training – can be measured and evaluated.

The skill level of the target audience for the training will have an impact on the evaluation instruments you can use. Workers with low literacy skills may have difficulty with complex evaluation forms, for example. If you can use existing instruments and data that are already being collected, the evaluation process will be less disruptive and the cost of the evaluation can be greatly reduced.

And, as with any special program, the degree to which both management and union leaders publicly endorse the evaluation process will affect the degree to which all levels of the organization "buy in" to the evaluation process. This buy-in, in turn, will facilitate the data collection process, as well as other aspects of the evaluation.

Effective training evaluation should serve as the basis for improving the quality of a training program and creating better outcomes. The next section provides information on designing and implementing a training program evaluation. It also suggests some good practices that may prevent potential problems.

Designing and Implementing a Training Evaluation

This section identifies some of the key elements and procedures for designing and implementing a training evaluation. It is divided into chapters covering a ten-step process:

1. Establish a relationship between the provider and customer,
2. Gain the involvement of key stakeholders,
3. Identify the goals and objectives for the training,
4. Specify the outcomes
5. Examine the inputs (and processes),
6. Identify the data required,
7. Collect the data,
8. Analyze the data,
9. Interpret the data, and
10. Use and report the data.

The first five steps explain how to *design a training evaluation*, while the last five steps explain how to *implement a data collection plan*. The questions that the company's stakeholders want to have answered by the evaluation drive the evaluation process, and are the focus of the first five chapters. These questions should specify the performance changes expected from the training program, and should be identified before the training begins.

The questions form the framework of the evaluation plan and determine the data that will be collected for the evaluation, the focus of the last five chapters of the guide. The guide emphasizes using as much *existing* data, data collection systems, and assessment tools (such as skill and knowledge assessments) as possible, in order to simplify the evaluation process and keep costs down.

This guide is constructed to help providers and employers plan for evaluation from the

outset of a training effort. By thinking and planning for a training assessment from the beginning, you will be able to get a richer and more cost effective evaluation than if you wait until the end of the program to ask what happened.

Evaluation should be used as a tool for improvement, similar to continuous improvement programs in companies, where plans, data, and feedback are used to enhance ongoing programs. This also argues for being aware of and using assessment tools from the very beginning of a training effort.

The training evaluation laid out in this guide is based on two overriding principles:

- *Clarify evaluation goals* – identify the concrete goals, objectives, and expected outcomes for the training during the planning effort, and
- *Simplify data collection* – look for existing sources of data and information that can verify the achievements of training objectives and outcomes.

How can you plan a good, simple evaluation? Is there such a thing as a good and simple evaluation? Absolutely. Evaluation of training delivery is good when it answers several basic questions:

- Did stakeholders receive what they had hoped for?
- What was the impact (outcomes) of the training program?
- What were the factors (inputs) that made it successful (or not)?

An evaluation can be simple when the evaluation goals are clear and when the planning and execution rely as much as possible on the input of stakeholders and on already existing data sources.

1. Establish a Relationship between the Provider and Customer

Critical Components

- Build a relationship
- Learn about the company

Good training evaluations are built on solid relationships between providers and training customers, regardless of whether these are outside providers working with independent companies, or in-house training departments working with other departments in their own companies.

Solid relationships are based on trust; and trust is built on openness, consistent performance, and results. Part of building a good relationship is the accountability and responsibility that comes through the development of a good evaluation strategy. If the relationship between a provider and company is to be sustained, the company's decision makers must have confidence in the provider and the provider's capability to deliver what it promises – results-oriented training and quality evaluations that prove those results.

A training provider must learn the company's goals and objectives, understand its business needs and strategic plan, and know its workforce and management style if it is to design an effective evaluation. It needs to learn about the context in which training will take place: the company's environment and its reasons for seeking training.

Companies function through a complex set of interrelationships within their industries and markets. They must respond to their

customers and to competitive pressures. Companies may seek training in response to either external or internal pressures. A company may hope to recover a declining market share or expand into a new market. Alternatively, it may perceive serious deficits in the skills of the workforce, skills that were adequate before work restructuring or the introduction of new technology.

Relationship building should allow the training provider to begin laying the ground work for its evaluation strategy. From the moment it begins working with a company, the provider needs to build support for the evaluation, pinpoint the information and outcomes that are important to the company and the workforce, and start collecting data.

It is essential that evaluators from outside a company form a close partnership with that company. Third-party evaluators may not know the company's business goals, or have access to the data or to the data collection systems that are needed for the evaluation process. Outside evaluators can play a valuable role, in concert with companies (and, whenever possible, training providers), in designing and implementing evaluations, but they probably cannot acquire all of the information they need to carry out the evaluations on their own. Company personnel must help define the program's objectives, collect data, and interpret the results. This involvement of company personnel is even more critical when training outcomes are to be measured over a period of years, after the consultant is no longer in the picture.

Keys to Success

- Establish trust; be honest and open with the company.
- Build support for the evaluation right from the start.
- Be guided by the company's goals and objectives.

2. Gain the Involvement of Key Stakeholders

Critical Components

- Identify stakeholders
- Work with stakeholders

A successful evaluation requires the involvement of *key stakeholders* in planning and execution. Stakeholders are the people who will be directly or indirectly affected by a training program. These include both participants (the training recipients) and decision makers (supervisors, managers) who invest time or money in the training.

The type and position of people who are direct stakeholders will vary by the size and organization of the company: In very large companies stakeholders may not include senior management, while in smaller companies the president or owner may be involved directly. As much as possible, stakeholder groups should include individuals from a variety of positions, and with a variety of roles, to encourage cross-fertilization of ideas and exchange of information.

Most often stakeholders are personnel within a company, including workforce representatives in unionized companies and personnel from the training department, but they can also include other "outside" stakeholders such as key customers. Where the training is being carried out at the request of a company's key customer (e.g., ISO 9000 training required to qualify as a supplier to a large company), it is logical to consider including the customer in the evaluation process.

This principle of involvement is a major departure from the old rules of evaluation in which "objective" outsiders conducted an evaluation with limited input from the "subjects."

Including key stakeholders, however, can be both effective and efficient. It draws on the experience and knowledge of the individuals directly involved in the program — those who have an interest in the outcomes. These individuals want a program that provides quality and value and meets company objectives. They are, therefore, an excellent (and available) source of ideas and data.

Tapping into the knowledge of participants (management, workers, union representatives, trainees, customers, and trainers) will vastly improve the content, efficiency, and effectiveness of training as well as the evaluation. Stakeholder involvement will help clarify the objectives and anticipated outcomes of the training. In other words, stakeholders can tell the provider (and each other) what is important to them and in what ways training resources should be directed. This information is essential in identifying the objectives for a training program.

Stakeholder involvement increases the capacity of the company and workers not only to participate in the evaluation, but also to make decisions based on the results of the evaluation process. Through involvement, people develop ownership over the process and the outcomes of the training. Evaluation is not something done *to* them but *with* them; they have the opportunity to help shape and improve the efforts.

Stakeholder involvement increases a company's capacity to take on some training and evaluation tasks itself. It teaches individuals how to design and carry out their own assessments of other programs. This, in itself, is a valuable outcome that can be applied to other areas of the workplace.

How do you form the stakeholder advisory group? Because stakeholders should be

involved at every step in the training and evaluation design, the provider needs to take time at the outset to identify the appropriate stakeholders, form a group, and build in meeting time for structured discussions on program design, curriculum, delivery, and organization. Shared governance of the advisory group is critical. In other words, one set of stakeholders, such as management, should not dominate the meetings.

Forming the group and getting it off to a good start is no trivial matter. The stakeholder advisory group should be formed at the invitation of management; people need to know that management approves of the activity and sees it as a valuable use of time. The provider should draw up a list of key stakeholder categories, and then have appropriate company personnel (including union representatives) review the list and suggest names for invitation to the stakeholder group. Invitations to people outside of the company should also be issued by company management.

A Stakeholder Group

In 1990, the Pneumatic Scale Company of Quincy, Massachusetts, decided to offer a training program in machining, electrical assembly, and electronic systems to a portion of its workforce. The goal was to address quality improvements and lead-time reduction by increasing the skills of assembly workers.

A stakeholder group was formed to guide the program and to assess the inputs and outcomes. The group met regularly (monthly or quarterly) for nearly two years and took overall responsibility for the program. The stakeholder committee included:

- Representatives of the assembly department,
- Union shop floor steward,
- Union president,
- Shift supervisor,
- Department foremen,
- Manufacturing manager,
- Operations director,
- Human resources director,
- Local technical college (provider), and
- State agency staff (funder).

How do you use the stakeholder advisory group to shape the evaluation? Stakeholders need to be involved at all points in the evaluation process, both to gain their "buy-in," and to make the results as useful as possible. Some of the stakeholders, such as front-line supervisors, might actually be needed to gather data for the evaluation.

It should be made clear from the outset of calling the stakeholders together that their purpose is to guide the training evaluation process. Stakeholder groups are not just general discussion groups, they have a specific responsibility: to serve as a resource for the training provider and the company in the evaluation process. It is leadership's responsibility to keep the group focused during the meetings and to help the group understand the importance of its task.

Stakeholder meetings may be expected and routine in companies that already have work cell or problem solving teams. In other companies, providers must ask for the meetings and build time for them into the basic training design. While there is a cost associated with this activity, you should help management understand that the meetings are an essential component of training delivery.

In companies that do not generally work in teams or hold meetings, an initial stakeholder advisory group meeting may be used to offer training and practice in effective meeting techniques and group decision making.

When stakeholder advisory groups work well, they very nearly guide themselves and provide their own internal leadership and direction. At first, however, groups will need a clear mandate and some guidelines.

The basic mandate of a stakeholder group focused on evaluation is to help the provider and the company determine the effectiveness and impact of the training program. The group needs to come to a common understanding on some of the following questions:

- Why should we do training or participate in a training program?

Elements of Successful, Productive Meetings

- Meetings should be relatively short and well organized, and should always have an agenda and structure.
- Meetings should have a "scribe" who takes notes and helps the group clarify decisions by using a flip chart, letting the group decide on the wording of key decisions (such as objectives).
- Meetings should also have a chair who promotes participation, and helps the group move along and follow the agenda.

- How does training fit into the company's business or strategic plan?
- What do we (a question for the company, for

- the union, and for individuals) want to gain or accomplish from the training program?
- What are the best methods and format of delivery?

In terms of an evaluation, the two most important questions are:

- What can we expect from training?
- How do we measure the results?

The discussion and the answers to these questions, which need to be asked and re-checked during the training program, will lead the provider and the company to a clear understanding of the impact and value of training. They will also help the stakeholder advisory group participate in the evaluation process in an objective, rather than subjective (and less useful), way.

Keys to Success

- Involve all people affected by the training program: management, workers, and stakeholders outside of the company
- Provide training needed to help the group be effective and efficient.
- Keep the group focused on the task at hand: guiding and facilitating the evaluation process.

3. Identify the Goals and Objectives for the Training

Critical Components

- Identify goals and objectives
- Build specificity

A critical next step in the evaluation process is to identify the goals and objectives of the training program. Why, specifically, is this particular training being done? Why now? What do the management or workers hope to accomplish? What is driving the need for training?

Answers to these questions often begin with general statements; they need to be more specific for the purposes of evaluation. Statements like

- "We want a skilled workforce to help our company be more competitive," or
 - "It is important for all of our workers to read"
- are too general. Goals and objectives will need to be tied to *measurable* and *observable* outcomes associated with the training, as well as aligned with the company's business or strategic plan.

A concrete statement that describes the training, the reasons for the training, and the specific results expected from the training is most helpful. For example, "company X wants to train machine operators in preventive maintenance techniques in order to reduce machine failure and machine downtime." Or, "company Y wants to provide problem solving skills to assembly operators in order to decrease the incidence of errors and rework." Or, "company Z purchased an upgraded Computer Aided Design package and needs to train its engineers to use the system."

Often, a smaller firm's external customers drive changes requiring new technology or new procedures; the rush to ISO 9000 in manufacturing is such an externally driven change. When this happens, firms will seek training for their workers in order to satisfy and retain customers. In this case, as in others, meaningful training must be tied to a specific business objective.

Achieving specificity on goals and objectives can be relatively complicated, especially for broad, comprehensive skill training programs. Using stakeholders to help specify goals and objectives can make the process much simpler. It is very important, however, to help the stakeholders develop clear goals and objective statements. Draft statements should be written down, circulated among the stakeholders, and refined to a consensus position. The goal and objective statements can then serve as guideposts for the training and evaluation program.

For example, a statement of goals and objectives for training could be written as follows:

Our department will provide machine maintenance training to machine operators in order to reduce the frequency of machine breakdown, lower the costs of machine maintenance, increase machine utilization, and thereby increase production. Through this training program, machine operators will learn to identify signs of potential machine failure, and learn procedures for routine machine maintenance and simple repairs that can be performed without calling machine maintenance personnel. Success of this

program in our department will contribute to lower operating costs for the company.

This statement identifies specific goals and objectives for the training. It states

- What will take place – machine maintenance training.
- Results expected within the department –
 - reduced breakdowns, lower maintenance costs, and increased machine utilization and production,
- Results expected for the workers receiving training – ability to identify potential failure and perform routine maintenance and simple repairs, and
- The expected impact on the company – lower costs of operation.

Keys to Success

- Involve the stakeholders in identifying the goals and objectives.
- Be as specific as possible. Goals and objectives will need to be tied to *measurable and observable* outcomes.

4. Specify the Outcomes

Critical Components

- Determine outcomes
- Focus outcomes

A clear statement of the goals and objectives guiding the training will help target the *outcomes* that the company and the provider expect to observe as the result of training. Outcomes become the evidence that the training did or did not have the desired effect. They are the basic accomplishments of the program. As we stated earlier, outcomes will occur at an individual level (a machinist increases speed and accuracy in CNC programming) and at an organizational level (the CNC cell reduces lead time). Both of these types of outcomes are important to identify and measure.

Obviously, then, it is to everyone's benefit to spend some time at the beginning

of the training relationship thinking about specific outcomes and the ways that the outcomes can be easily and simply observed. One meeting of stakeholders brainstorming about potential training outcomes can generate a very long and comprehensive list. The question to ask is: What will happen (to a job, to a process, to a person, to a product, to the company) if this training is successful?

Increasing the capability of machine operators to perform preventative maintenance on machines, for example, may directly affect operators' skills and knowledge about the equipment, product flow, product quality, and operation costs. Which of these are the most important outcomes? Which outcomes reflect the goals of the individual (more knowledge, greater promotability, increased scope of action and flexibility) or the company (higher product quality, less machine downtime, lower maintenance costs)?

Keys to Success

- Consider both *individual* and *organizational* outcomes.
- Use stakeholders to brainstorm *potential outcomes*.
- Focus the evaluation on the most critical outcomes.

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5. Examine the Inputs (and Processes)

Critical Components

- **Determine individual inputs**
- **Determine organizational inputs**

In order to determine whether efforts to respond to customer needs are effective, you have to assess what goes into the training as well as what comes out. What goes into the training are known as the *inputs* to training.

Inputs to training, like outputs, may be both individual and organizational. Individual inputs include the background characteristics of the trainees, while organizational inputs pertain to the company and its training program. These organizational inputs include the company environment in which the training program is offered, as well as the planning, curriculum, and delivery methods of the training.

In traditional training environments and among high-volume commercial training providers, training planning and delivery are determined by the provider. Some educational institutions' curriculum and delivery may not be sufficiently flexible or responsive to customer needs. However an increasing number of providers are incorporating flexibility of format, content, and delivery into training design

Inputs can have a significant impact on training results. For example, training may not produce expected outcomes simply because it was not targeted to the workers appropriately. Some quality improvement programs assume a high level of literacy and reading comprehension on the part of the workforce, which might not be present. The literacy level of the workforce can be considered an "input" which should be taken into account in the evaluation of the training.

Organizational inputs also affect training results. For example, a training program could have been offered at an inconvenient location or time for its target group. If participants feel that the training program is not valued because it is offered in the basement, or if participants can't attend due to conflicting schedules, then the training will not produce the desired outcomes no matter how good it is.

Ideally, an effective stakeholder advisory group would carefully identify key conditions (inputs) for training success and solve issues such as scheduling before the training even began. In the real world, however, things are more complex. A stakeholder advisory group can help the evaluation be sensitive to changing conditions – in the workforce, the company, and the provider – that may have affected training results.

Keys to Success

- **Develop** a list of all the individual and organizational inputs that could positively or negatively affect training results.
- **Use** the stakeholders to keep a pulse on changes in the workforce, company, or provider that might affect the training program.

6. Identify the Data Required

Critical Components

- Identify outcome measures
- Identify input measures

Once the expected outcomes have been clearly specified and the inputs considered, data must be found to measure these. Data are most often thought of as quantitative information, such as cost or units of numerical measurement (time, for

example). But other types of data are also important. Qualitative data, which might result from interviews with key participants, or anecdotal evidence, can be equally important in assessments.

Some of the questions about performance changes (outcomes) will be answered by individual data, some by organizational information. Likewise, data related to inputs are both individual and organizational. The following table summarizes the evaluation process with some sample entries.

EVALUATION PROCESS	
Individual Outcomes	
What to Measure	How to Measure
Learning gains	Mastery tests, standardized skill and knowledge assessments (e.g., occupational skill standards assessments), alternative assessments (e.g., portfolio assessments)
Attitudes	Surveys, interviews
Skill transfer to the job, changes in job performance	Job output, supervisory ratings, interviews, tracking promotions, observation
Organizational Outcomes	
What to Measure	How to Measure
Productivity, quality, reduced waste, safety	Existing company data collection systems
Individual Inputs	
What to Measure	How to Measure
Trainees' background characteristics	Employee records, questionnaires, skill assessments
Organizational Inputs	
What to Measure	How to Measure
Company environment (e.g., hiring/downsizing, support for training, work processes)	Company data, questionnaires, interviews, observation
Amount of training	Training records, questionnaires
Training content	Curriculum review
Training delivery	Questionnaires, participant logs
Training costs	Available data

You can use this table to design your own training evaluation. Use the outcomes and inputs identified in earlier chapters to define "what to measure." Then think about potential data sources for measuring the outcomes and inputs. Start with a blank table and fill it in with entries relevant to your training program.

If the outcomes you are interested in are whether people are more satisfied with their jobs or feel that their skills or job environment has improved, then people's perceptions are a very good source of data. For the most part, however, a company's management will look first at such quantitative outcome measures as time saved, productivity increased, or quality improved.

What types of measures can you use to assess change? Since the questions for the evaluation plan are developed by the stakeholders, the stakeholders can also help identify the information that will provide answers to the questions. It is best to determine up front, with the stakeholders, the minimum information needed to answer the questions about outcomes and inputs. This information would be entered in the table column entitled "What to Measure."

Individual outcomes from training usually include learning gains, improved attitudes, enhanced performance, and promotions. Transfer of the knowledge and skills acquired in the training program is really "the proof of the pudding."

Evidence of positive organizational outcomes from training might include:

- Sales records,
- Production rates,

- Waste reduction rates,
- Customer satisfaction,
- Safety statistics, and
- Retention and absentee rates.

Reviewing data and evidence with the stakeholders will also help the evaluator identify the types of data that are important to different stakeholders. For example, while very few companies keep extensive skill assessment or performance data on individuals, some stakeholders may feel that one of the most valuable measures of a training program's effectiveness is changes in individuals' skills or performance. Therefore, collection of new data may sometimes be warranted and considered worth the time and expense.

Strategies Organizations Employ for Evaluating Training

Type of Evaluation	Percentage Using
Measuring trainees' reactions	86%
Testing trainees	71%
Evaluating trainees' behavior	65%
Measuring business results	49%

— "1996 Industry Report,"
Training, October 1996

The box showing the percent of organizations using various strategies for evaluating training indicates that most organizations focus on documenting individual outcomes, especially measuring how people "feel" about training. While this strategy is the easiest to implement, it provides the least amount of information about the actual impact of the training program on both individuals and the company.

Keys to Success

- Use earlier work defining outcomes and inputs to determine "what to measure."
- Let stakeholders determine the key items that have to be measured.

7. Collect the Data

Critical Components

- Access available data
- Use existing assessments
- Design new data collection instruments

In developing the evaluation plan, you should consider the type of data collection that is feasible for a company's organizational structure and resources. Data required for an evaluation can be broken down into two categories: data that already exist and data that do not exist. The latter, all joking aside, may be expensive and require a great deal of effort to collect.

As much as possible, it is important to *look first at existing data* to see if they will answer the questions posed by the training evaluation design. If the existing data will answer the questions posed, then the evaluation process can be relatively inexpensive.

The appropriate data, however, may not exist or be available to answer the evaluation questions. If this is the case, the evaluation will require extensive (expensive) data collection procedures. The cost of this endeavor must be weighed against the value of the evaluation. It might be appropriate to offer the training program without extensive evaluation to avoid the expense of collecting new data.

In most cases, some relevant data will be easily accessible. Many smaller companies, although nearly overwhelmed by requirements to provide information to their customers and to local, state, and federal regulatory agencies, *already* collect a lot of data on such variables as quality, production costs, value added per employee, throughput, scrap, administrative costs, lead time, inventory, material turns,

product flow, and cost of sales. These data are often useful in conducting an evaluation of a training program.

If the company is already using the data for cost analysis, planning, or forecasting, then these data are *relevant and important* to effective management. Tying the evaluation to this existing information will not only make the evaluation easier to conduct, but will also make it more relevant and important to the company. The evaluation may help the company look at its existing data and information in new ways that provide new insights into company operations.

How can you collect information to assess change? It is important that the data collected actually answer the questions being asked. At times, data may be collected because they are accessible, even though they don't directly pertain to the questions being asked. As a result, too much data can be collected and the process can become more burdensome than it needs to be. You should work with the stakeholders to decide how to collect the necessary data and enter the information in your table column entitled "How to Measure."

Trainees' learning gains should be assessed by specific tests that indicate whether or not a person has mastered the knowledge and skills taught in the training program. Should the program evaluation then use skill testing? Stakeholder advisory groups can best answer this question and weigh the relative costs and benefits.

The trainer is usually the best person to devise specific tests, since the tests should measure mastery of the training program content. Sometimes a standardized test may be used to measure learning gains. Before

using one, though, you should first be sure that the test measures information needed to answer the questions posed in the evaluation design. If the test has been properly developed and field tested, you can be confident that the results will be accurate.

Transfer of knowledge and skills learned in the training program to the job may be assessed in a variety of ways:

- Supervisor rating scales measuring job performance. (The rating scales should focus on application of the specific knowledge and skills taught by the training program, rather than on global job performance.)
- Work samples collected over time to identify inclusion of newly learned knowledge and skills.
- Observation scales measuring the specific aspects of job performance that relate to the training program.
- Interviews determining employees' and supervisors' perceptions of the effects and quality of training. (You should look for themes that emerge from open-ended responses so that you can determine the perceived impact and quality of the training program.)
- Written surveys soliciting reactions to the training program in structured questions and open-ended responses.

Various stakeholders, such as front-line supervisors, may be able to suggest ways to assess the transfer of skills and knowledge learned in training to the job. They may also be able to collect these data.

Existing data may be the best source for assessing changes in a *company* due to the training program. It might be difficult, however, to specifically tie some of these to the training program since they are influenced by multiple factors, such as the time of

the year in businesses affected by seasonal trends. Individuals in the stakeholder advisory group, who represent many different aspects of a company, are probably in the best position to identify which organizational indicators of change in the company might be accurately credited to the training program.

Similarly, existing data may also be useful in considering the inputs to the training program. Again, the stakeholder group is the best source of information about the inputs that may have influenced the outcomes of the training.

What are other considerations in collecting data? Sometimes you may have to design a new data collection instrument. When doing this, you must be careful to establish that the instrument really does measure what you intend. Asking the stakeholder advisory group to review your instrument can help ensure its relevance.

You also must be sure that your instrument will give you consistent results. You should first try it out with some workers who are similar, but not the same as, those in the training program, to see if they answer the questions as you expect. If certain questions on your test are frequently answered incorrectly, check them for ambiguous wording. You may also want to review the answers with employees who took your pilot test to see why they answered as they did so that you can eliminate poorly worded items.²

Other considerations in collecting data are:

- Following test administration procedures if you are using standardized tests,
- Setting consistent data collection procedures for newly designed instruments, and
- Training data collectors, especially if more than one person is administering the instruments, to assure accuracy and consistency of the data collected.

² If a test measures what it is supposed to assess, it is said to be *valid*. If the test yields consistent results, it is *reliable*.

Keys to Success

- Use existing data as much as possible, but **don't use data that isn't pertinent.**
- Look for good assessment tools that **measure the outcomes and inputs** relevant to your evaluation.
- Make sure that any data collection instruments **you develop** are both *valid* and *reliable*.

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8. Analyze the Data

Critical Components

- Use "control group" analyses
- Use "pre-post" analyses

The major purpose of the evaluation process is to determine whether or not change occurs *as a result of the training program*. Measuring that change requires a comparison of performance after training to:

- A similar group that did not receive the training ("control group"), or
- Baseline data, such as pre-tests, that are gathered before training.

In an ideal evaluation design, you would collect data from the employees participating in the training and from a group of comparable employees who are not involved in the training program (a control group), and compare the status of the two groups after training. There could be changes in performance in both groups. However, any *difference in the changes* between the two groups could be attributed to the training. This type of comparison ensures that outcomes observed following training are due to the training intervention and not to something else.

If this "control group" design is not feasible (due to cost, difficulty of withholding treatment from some individuals, etc.), a pre-post design should be used to view changes over the course of the training. Baseline data would be needed to judge whether the training program has an impact on *individuals*. To measure learning gains, for example, individuals could be administered pre- and post-tests related to the training. Baseline data can also

be useful in measuring *organizational* outcomes. A company would need to know its safety record *before* training takes place in order to determine any change *after* a safety training program.

In using this design, you must determine the amount of time between the pre and post data collection periods. Common sense says that there must be enough time between pre- and post-tests for measurable change to occur. In measuring changes in job performance, it is important to consider the time it would take for employees to use the skills they have learned on the job before scheduling data collection.

You can display quantitative data to show pre- and post-test scores for each participant (presented numerically to preserve anonymity). You can also aggregate the data using a:

- *Mean* – average score,
- *Median* – middle score, or
- *Mode* – most frequently occurring score.

A mean score can be influenced by extreme scores; however, it can be used in statistical calculations. If you have a distribution without extreme scores, the mean may be the most useful measure. (You must remember, however, that only in Lake Wobegone are "all the children above average"!) If you have extremely high or low scores, a median or mode may provide more relevant information.

For qualitative measures, such as interviews or open-ended questions on surveys, you will want to analyze the ways in which respondents' answers change from before to after the training program. You can look for themes that emerge and document the number of occurrences.

Keys to Success

- Use a "control group" design whenever possible.
- Make sure the time between pre and post measurements is appropriate for the training and evaluation design.
- Don't shy away from qualitative measures with either "control group" or "pre-post" analyses.

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9. Interpret the Data

Critical Components

- Determine causation for individuals
- Determine causation for organizations

The last step identified whether or not change occurred; this step determines the *causes* of the change. The last step focused on outcomes; this step identifies the inputs that brought about the change.

With the results of the data analysis (outcomes) in hand, you need to check the training inputs. If the results were positive, you must determine whether the training program brought about the changes, or whether the changes were due to chance or some confounding factor (for example, pay raises to the trainees).

If the training program did not produce positive results, or even produced negative results, you need to determine why. Was it the fault of the training program, or of other outside events? A review of the inputs could suggest the source of the problems. It may be that the trainees lacked the appropriate prerequisite skills to benefit from the training program. Or perhaps the training program was not long enough or not well attended due to scheduling conflicts. Answers to these questions can be used to improve the training program so that it will have greater impact when offered again.

How can you determine whether training caused a change in individuals? The design of the data collection will influence the types of inferences you can make about training. If you have used a matched control group that did not receive the training program, it is reasonable to assume that any differences in participant outcomes between the two groups are attributable to the training.

If you used a pre-post design, you will be able to see the changes that occurred between the beginning and the end of the training, but you can't be sure these were *caused* by the training. There may be alternative explanations as to why these changes occurred. You need to consider confounding factors, such as other company initiatives or in-house training, that may account for these differences.

One way to determine whether changes were the *result* of a training program is to compare the data on employees' participation in the training with the outcome results. Individuals who attended rarely should show little or no growth as a result of the training, while those who attended regularly should show improvement. If your results follow this pattern, they were probably caused by the training. If they don't, changes you observe may be the result of other factors.

How employees feel about training and the way training is treated within a company can significantly affect training's impact on individuals. Trainees who see personal as well as corporate benefits to the training program usually attend voluntarily. Those who are rewarded for participation by increased wages have higher morale, which may pay off to the company in greater productivity.

Sometimes, however, training is not voluntary. Workers may be held accountable for production schedules that do not recognize their time in training. Supervisors and co-workers may resent trainees' time off the job and may make their jobs difficult. Participation in training may not be rewarded by recognition or increased pay. In these cases, morale is likely to drop, perhaps negatively influencing participants' productivity.

Stakeholders can play a valuable role in interpreting training outcome data. They can

examine the preliminary results from the data analysis, and help identify any confounding factors that might have influenced participants' performance on the outcome measures. They also may be able to identify aspects of the training program that could be improved.

How can you determine whether training caused a change in organizations?

Determining whether change in an organization is due to a training program or some other event is much the same as determining whether training brought about a change in individuals. If changes at an organization *with* training can be compared to changes at a comparable organization *without* training, then any differences between the two organizations can be ascribed to the training program. Such an analysis, however, is seldom possible.

Organizational impact is very difficult to assess in most companies because it is even harder to show causation here than it is with individuals. Collecting relevant baseline data *before* training will enable you to make comparisons *after* training, but this will not prove causation.

In addition, positive training outcomes can be masked by the negative effects of other events. Sometimes outcomes from training can be negated by such factors as poor raw materials. Sometimes working conditions, such as extreme heat in plants without air conditioning during hot weather, can negate the immediate effects of training. Again, the stakeholders may be able to identify any confounding factors.

In conducting an evaluation, you should also look for *unanticipated consequences* beyond the expected outcomes you identified ahead of time. Capturing unanticipated consequences, whether positive or negative, is a valuable component of an evaluation. These

consequences can help to establish the value of training as well as identify changes or improvements that can be made in planning and delivering the training program.

The purpose of a training program, for example, may have been to reduce lead time in a company's machining department. An unanticipated consequence, resulting from interactions in the training sessions, may be improved communication processes between the order entry department and the manufacturing floor. Without an evaluation plan, this unanticipated positive impact might not be attributed to the training program.

Interpreting Training Results at a Seattle Hotel

A hotel in Seattle introduced a workplace literacy training program in order to improve the English language skills of its housekeeping and food service staff. The hotel expected that the workers' improved language skills would enable them to interact better with hotel guests, and that this would lead to an increase in guest satisfaction. The hotel calculated a guest satisfaction index for the year prior to the training program, and then calculated the index again after the training program. When the hotel compared the two figures, it noted a substantial gain.

The hotel did not, however, stop the analysis there. It also compared the change in the guest satisfaction index with that of a comparable hotel, in the same chain, in another city, for the same time period. At both hotels the guest satisfaction index rose, but it rose at a higher rate at the Seattle hotel that had implemented the workplace literacy training program. Because the Seattle hotel *with training* was able to compare its progress to a comparable hotel *without training*, it could feel confident that training *caused* its satisfaction index to rise higher than it would have otherwise.

Keys to Success

- Question results. Try to determine whether training was the cause of individual and organizational outcomes.
- Let stakeholders help you identify any confounding factors that might have influenced training results.
- Be open to unanticipated outcomes. Training might produce side benefits that neither you nor the company had expected.

10. Use and Report the Data

Critical Components

- Prepare a report
- Improve the program

Once you've interpreted your data, you need to decide what to do with the information. Whether the evaluation is conducted internally by the training department or externally by a third-party evaluator, a report needs to be prepared. It should include not only the numerical findings but also a summary and commentary on the results. Recommendations for changes in the training content, delivery, and workforce participation are appropriate if they are based on the evaluation results.

In business, it would be considered poor practice not to respond to the legitimate concerns of customers as soon as they were known. In program operation, ongoing evaluation should be used in the same fashion: The evaluation process should be used to continuously improve both the process and products of a training program.

Continuous improvement is a tool employed by many companies that uses evaluative data to modify and improve ongoing practices. Similarly, information and feedback from participants and stakeholders should be used to gauge and improve the delivery and organization of training during the course of the program. This increases the likelihood of success, as well as the likelihood that there will be a next program.

Continuous improvement applied to program planning and delivery confounds traditional program evaluation techniques, which assume that planning, delivery, outcomes, and evaluation come in a fixed sequence. In real life, companies must do

Baltimore Center for Port-Related Industries

The initial training class offered to ILA 953 was "An Introduction to Maritime Industry — Maryland, a Quality Port." This four-week course introduced the concept of the port as a single industry, and highlighted the interdependencies among key players in the port community. The message in this initial course was so powerful that instructors decided to reinforce the quality concept in the planned technical classes.

The staff elected to eliminate "Introduction to Maritime Industry" as a separate class and to adopt team teaching in order to integrate the quality elements of the maritime course into the planned technical classes, and make quality an integral part of employee work practices. This flexibility to rewrite curriculum exemplifies the concept of continuous improvement

their best to improve things as they go along. Their success in these efforts can be measured just as well, but it requires a more flexible measurement strategy focused on the goal of providing effective training.

In fact, through group processes and good meeting practices, it is possible to be both flexible about change and rigorous in measuring the impact of change. Feedback from stakeholders comprises a source of data on the planning and delivery processes. These data can be charted and the changes in planning and delivery noted.

Providers can look at data collected on outcomes, and evaluate these against the changed inputs, in order to determine training effectiveness. Documentation in meeting minutes of group decisions and changes in training planning and delivery will assist the evaluation process.

Keys to Success

- Don't let the desire for a "pure" evaluation prevent you from improving the training program whenever you can.

Conclusion

Evaluation is a necessary and valuable part of any training program. The ten steps described in this guide can help you develop a cost-effective evaluation that involves a stakeholder group in all aspects of the process.

Some companies are concerned about cost-benefit analysis, also called return on investment (ROI). The many formulas available for determining ROI are beyond the scope and intent of this guide. Those interested in ROI, however, could consult the series of articles by Phillips (*Training and Development*, 1996) that are summarized in the Training Evaluation Resources Appendix.

Before undertaking an ROI analysis, however, you must consider whether the time and expense involved is worthwhile. You may find that only *selected* training programs,

perhaps those that are repeated frequently or involve most workers, should be evaluated for ROI. In other cases, the effort and resources that would be expended in determining ROI might be better spent supporting your training program.

Evaluation, as described in this guide, can provide important information about the impact of a training program and strategies for improving it. Evaluation can provide evidence of training's impact on individual trainees *and* on the organization, information valuable for both the company *and* the training provider.

For an outside training organization, evaluation can be part of its marketing strategy to other companies. Positive evaluations of previous training programs are proof that the trainers are knowledgeable and effective. Evaluation provides the evidence.

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Training Evaluation Resources

Basarab, D. J., Sr., and Root, D. K. (1992). *The training evaluation process: a practical approach to evaluating corporate training programs.* Norwell, MA: Kluwer Academic.

Discusses formative and summative evaluation. Categorizes Kirkpatrick's four evaluation levels, with levels one and two being formative, and levels three and four being summative. Explains the five phases of the training evaluation process. Could be used as a working manual for training evaluation. Charts, tables, instruments, sample evaluation plan, and sample final report could serve as models for designing evaluation.

Brinkerhoff, R. O., Brethower, D. M., Hluchyj, T., and Nowakowski, J. R. (1983). *Program evaluation: a practitioner's guide for trainers and educators (Design manual and Sourcebook/Casebook).* Hingham, MA: Kluwer Boston, Inc.

The sourcebook divides evaluation into seven areas: 1) focusing and 2) designing the evaluation; and 3) collecting, 4) analyzing and interpreting, 5) reporting, 6) managing, and 7) evaluating information. Provides a thorough coverage of this approach to evaluation. The casebook and design manual may be used with the sourcebook. The design manual offers a step-by-step procedure for working through an evaluation; it includes model worksheets and checklists.

Broad, M. L. (1992). *Transfer of training: Action-packed strategies to ensure high payoff from training investments.*

Helps managers, supervisors, and employees in U.S. organizations achieve full job performance by acquiring and applying effective strategies to transfer the knowledge and skills learned in training to the workplace. Part 1 covers human resources development and the transfer problem, barriers to and management of transfer of training, and key roles and times to support transfer. Part 2 presents transfer strategies for use before, during, and after training, and an action-planning relapse prevention strategy. Part 3 discusses using and supporting transfer in organizations. The appendices include strategies for managing the transfer of training, behavioral processes underlying successful transfer of training, the steps entailed in conducting a transfer audit, a glossary, and a bibliography.

Center for the Study of Evaluation. (1987). *Program evaluation kit (2nd ed.) (Vols. 1-9).* Newbury Park, CA: Sage.

This evaluation kit has nine volumes (approximately 150 pages each):

Vol. 1. *The Evaluator's Handbook*, by J. L. Herman, L. L. Morris, and C. T. Fitz-Gibbon.

Vol. 2. *How to Focus an Evaluation*, by B. M. Stecher and W. A. Davis.

Vol. 3. *How to Design a Program Evaluation*, by C. T. Fitz-Gibbon and L. L. Morris.

Vol. 4. *How to Use Qualitative Methods in Evaluation*, by M. Q. Patton.

Vol. 5. *How to Assess Program Implementation*, by J. A. King, L. L. Morris, and C. T. Fitz-Gibbon.

Vol. 6. *How to Measure Attitudes*, by M. E. Henerson, L. L. Morris, and C. T. Fitz-Gibbon.

Vol. 7. *How to Measure Performance and Use Tests*, by L. L. Morris, C. T. Fitz-Gibbon, and E. Lindheim.

Vol. 8. *How to Analyze Data*, by C. T. Fitz-Gibbon and L. L. Morris.

Vol. 9. *How to Communicate Evaluation Findings*, by L. L. Morris, C. T. Fitz-Gibbon, and M. E. Freeman. Volume 1 has an overview and is a directory for the other manuals. It contains step-by-step procedural guidelines for conducting both formative and summative program evaluations. Each of the other volumes provides elaboration, explanation, and background information for each aspect of the evaluation process. Except for *The Evaluator's Handbook*, each book can be used individually when focusing on a particular section of the evaluation process. *The Evaluator's Handbook* covers formative and summative evaluations, including setting the boundaries of the evaluation, selecting appropriate evaluation methods, collecting and analyzing information, and reporting findings, and provides an example of an evaluation report.

Human Resources Development Group. (1994). *Establishing the value of training: Resource guide* (HRDG Publication No. HRDG-023). Washington, DC: United States Office of Personnel Management, Office of Research and Information.

Provides a clear and concise tool to use when establishing the value of training. Based on Kirkpatrick's four-level evaluation model, a four-stage evaluation process is utilized including: focus, plan, implement, and evaluate. Provides step-by-step procedures for doing training evaluation, but is primarily focused on calculating training's value. Tables and job aids (sample worksheets, checklists, etc.) are included. Covers the what, why, when, and how of establishing the value of a training program.

Joint Committee on Standards for Educational Evaluation. (1994). *The program evaluations standards: How to assess evaluations of educational programs* (2nd ed.). Thousand Oaks, CA: Sage.

Discusses thirty standards which are divided into four attributes of an evaluation: utility, feasibility, propriety, and accuracy. Describes each standard, gives guidelines to help evaluators meet the requirements of the standard, relates what difficulties are associated with each standard, and includes a case study or two to illustrate the application of the standard. In order to assist in applying the standards, a functional table of contents reorganizes the list of standards into ten headings.

Kirkpatrick, D. L. (1994). *Evaluating training programs: The four levels*. San Francisco, CA: Berrett-Koehler.

Gives an in-depth look at Kirkpatrick's four levels of evaluation. Provides guidelines for each of the four levels of evaluation and elaborates each guideline. Discusses reasons for evaluation and how to implement the four levels. Contains case studies of implementing evaluation of training.

Manly, D. (1994). *Workplace education evaluation checklist: A tool for assessing and improving performance*. Madison, WI: University of Wisconsin, Center on Education and Work.

This book is an evaluation instrument with no real text. Four checklists can be used to evaluate workplace education programs: program design and administration indicators, participant achievement indicators, program outcome indicators, and evaluation tools. Checklists could be useful for the evaluation of other types of training and education programs if modified.

Medsker, K. L., and Roberts, D. G. (Eds.). (1992). *American Society for Training and Development trainer's toolkit: Evaluating the results of training*. Alexandria, VA: ASTD.

One of two toolkits developed by ASTD. Focuses on levels three and four of Kirkpatrick's model. Explains how combining a model by Nadler with Kirkpatrick's model enables you to see where

Kirkpatrick's four levels come into use. Renames Nadler's five stages as: needs analysis, preparation, human resources intervention, on-the-job, and outcomes. Recommends Phillips' 18-step model also as a standard. Discusses some basic models and includes examples, worksheets, tables, checklists, and case studies.

Phillips, J. J. (1991). *Handbook of training evaluation and measurement methods* (2nd ed.). London: Kogan Page.

Mentions six models besides Kirkpatrick's model, including the Bell System approach; the CIRO (context evaluation, input evaluation, reaction evaluation, and outcome evaluation) approach; Saratoga Institute approach; the IBM approach; Xerox approach; and CIPP (context, input, process, and product) approach. Explains an 18-step compete results-oriented HRD model. Evaluation instrument design, including tests, questionnaires, surveys, interviews, etc., is discussed. Chapters cover evaluation design, costs and returns, data collection and analysis, and using computers in the evaluation process.

Phillips, J. J. (1996). How much is the training worth? *Training and Development*, 50, (4), 20-24.

This is the third article in a series about return on investment. It shows how to convert program results to monetary benefits that bosses can understand. It includes a five-step conversion process.

Phillips, J. J. (1996). ROI: The search for best practices. *Training and Development*, 50, (2), 42-47.

This is the first in a series of three articles about measuring the return on investment in training. Provides case studies to look at how one measures return on investment (ROI) in training. Includes a framework for developing ROI and emphasizes the need for a variety of evaluation plans.

Phillips, J. J. (1996). Was it the training? *Training and Development*, 50, (3), 28-32.

This is the second article in a series about return on investment. It describes ten ways to isolate the effects of training so that training is credited over other variables as the reason for performance improvements.

Smith, M. E. (1991). Summative evaluation. *Performance Improvement Quarterly*, 4, (2), 35-58.

Discusses summative evaluation, focusing on eight steps involved in the planning process. Topics discussed include client commitment to evaluation; evaluating the training organization; evaluating management training, including appropriate evaluation strategy; institutionalizing the evaluation process so it becomes normal operating procedure; and conducting cost-benefit studies.

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National Workforce Assistance Collaborative Products and Services

The **National Workforce Assistance Collaborative** offers an array of products and services providing information and assistance in four areas: employee training, labor-management relations, work restructuring, and workplace literacy.

Resource Listings

- *Resource Guide: A Key to Organizations Working in Employee Training, Labor-Management Relations, Work Restructuring, and Workplace Literacy* - A listing of national membership organizations and state program offices supporting workplace and workforce changes.
- *Workplace Literacy Publications: An Annotated Bibliography of Print Resources* - A workplace literacy bibliography.

Newsletters

- *Workforce Briefs* - A series of newsletters for businesses. Initial newsletters focus on: changes companies can make to increase their competitiveness, the value of training, ways to involve employees in company change processes, the need for and value of workplace literacy programs, new pay policies, the roles of employers and employees in career development, and starting a human resource department.
- *Business Assistance Notes* - A newsletter series for service providers. Initial newsletters focus on: the needs of small and mid-sized companies, integrated service delivery, cost effective services, implementing learning consortia, marketing to businesses, organizational training needs assessment, training evaluation, and state-level integration policies.

Tools for Companies

- *Product Checklists* - Two checklists - for employee training and workplace literacy products - companies can use to determine whether particular assistance products follow best practice.
- *Interview Guides* - Four guides - for employee training, labor-management relations, work restructuring, and workplace literacy products - companies can use to interview and select appropriate service providers.

Tools for Service Providers

- *Integrated Service Delivery* - A publication, based on case studies of "best practice" sites, that provides insights into the best methods for delivering integrated services - services in the areas of employee training, labor-management relations, work restructuring, and workplace literacy - to small and mid-sized companies.
- *Delivering Cost Effective Services to Small and Mid-Sized Companies* - A how-to guide that highlights proven approaches for delivering cost-effective services to small and mid-sized companies.
- *Approaches to Forming a Learning Consortium: A Guide for Service Providers* - A how-to guide on forming learning consortia.
- *Marketing to Businesses* - Information on how to identify and effectively market services to a local business community.
- *Assessing an Organization's Training Needs* - A guide that identifies performance assessment issues and helps identify assessment tools.
- *Assessing the Value of Workforce Training* - An introduction to assessing the value of training programs, focusing on quick and easy strategies.
- *Selecting and Implementing Computer-Based Training* - Checklists and text that will enable individuals to determine the most appropriate 1) training media, 2) type of computer-based training, and 3) computer-based training product or provider.

Internet Services

- *Internet Listserv* - An electronic forum for discussing issues and sharing information on workforce and workplace development issues. To subscribe to NWAC-L, send an e-mail message to LISTSERV@PSUVM.PSU.EDU. Leave the subject line blank. The body of the message must contain only the following: subscribe NWAC-L YourFirstName YourLastName.
- *Gopher Server* - Online access to materials and products produced by the Collaborative as well as additional instructional and staff training materials, research, databases, bibliographies, program guides, reports, and articles concerning small and mid-sized businesses and the challenges they face. The Gopher Server address is INFO.PSU.EDU. After you reach the Gopher Server, open "Information Servers at Penn State," then open "Research Centers and Institutes" to find the National Workforce Assistance Collaborative Gopher site.
- *World Wide Web Home Page* - Information on the Collaborative and its products and services, as well as links to related information on the Internet. The Collaborative's world wide web address is <http://www.psu.edu/institutes/nwac>.

For more information on the Collaborative and its products and services, contact the National Alliance of Business, 1201 New York Avenue NW, Suite 700, Washington, DC 20005, phone 800/787-2875, fax 800/787-2848, e-mail INFO@NAB.COM.

Products can be downloaded from the Collaborative's gopher server or world wide web home page, or ordered directly from the National Alliance of Business, Distribution, P.O. Box 501, Annapolis Junction, MD 20702, phone 800/787-7788, fax 301/206-9789, e-mail INFO@NAB.COM.

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